

8.5 Conclusions

In making the determination that additional analysis is required, the baseline (Alternative B) against which this analysis was completed must be considered. Since Alternative D was the maximum impact case, it is important to understand whether the additional analysis was unanalyzed (not in the 1995 EIS) or not a part of the ROD (a part of one of the other alternatives but not a part of Alternative B.) In this case, the additional analysis that is required is not included in any of the other alternatives in the 1995 EIS. Hence the additional analysis identified above is required.

9.0 SUMMARY

9.1 Program Change Analysis Summary

This section summarizes the results of the Program Change Analysis.

Decontamination and Decommissioning (D&D)

The D&D program has not accomplished all of the D&D activities previously projected because of reduced funding availability. The buildings that have undergone the D&D process have not had environmental impacts greater than those analyzed. The only impact not completely analyzed is the affect on site groundwater of future D&D decisions to leave radiological contamination in place vs. disposal in a LLW disposal facility. D & D decisions made since the 1995 EIS and which left radioactive source term in the ground received additional NEPA analysis. Further analysis may be required to ensure future D&D decisions are integrated with a sitewide groundwater analysis to understand the impacts of project specific decisions.

Environmental Restoration (ER)

With CERCLA actions, the environmental impacts are analyzed during the CERCLA process, including a public involvement process. The NEPA values that are not routinely addressed through CERCLA are addressed in the 1995 EIS. The changes that have taken place in the ER program over the last five years have resulted in reduced environmental impacts.

All impacts described in the 1995 EIS are bounding from a NEPA perspective. The purpose of this supplement analysis was not to analyze the adequacy of the CERCLA decisions but to ensure that a multidisciplinary review of proposed sitewide actions was conducted.

High-Level Waste

The high-level waste program is considering significant changes. As a result, an EIS has been prepared to analyze these proposed changes. The EIS describes environmental impacts that are beyond those impacts described in the 1995 EIS. No further NEPA analysis is required for this program because those HLW related impacts beyond those described in the 1995 EIS are addressed in the HLW & FD EIS.

Infrastructure

Projects in the 1995 EIS not specifically included in the ER, WM, HLW, or SNF sections are addressed in this analysis. The 1995 EIS covers the infrastructure projects listed and describes

the balance of the infrastructure program. A number of Line Item Construction Projects have taken place in the last five years but these are like-for-like replacements and are still bounded by the impacts described in the 1995 EIS. No further NEPA analysis is required for the portions of the Infrastructure program covered by the 1995 EIS.

Spent Nuclear Fuel (SNF)

All INEEL projects related to the SNF program have been analyzed. Changes to the program in the last five years have resulted in reduced environmental impacts due to fewer SNF shipments. Privatization activities with the Independent Spent Fuel Storage Installation represent changes in the program but not in environmental impacts.

Waste Management (WM)

All aspects of the WM program have been analyzed. Changes to the program in the last five years have resulted in reduced environmental impacts (specific examples include the shutdown of WERF and the decision to not build a greater than class-C storage facility). Some of the environmental impacts for the WM program are analyzed in the AMWTP EIS. No impacts were analyzed in the AMWTP EIS that would exceed the impacts described in the 1995 EIS.

9.2 Summary of Alternatives Analysis

While the 1995 EIS used a cutoff date of 2005 for the analysis, this review has determined that the 1995 EIS provides a bounding analysis for most projects beyond 2005. This issue could be reexamined when the next Supplement Analysis is conducted to ensure the continued validity of this determination. Any changes in programmatic actions will require additional analysis to determine whether the proposed changes are within or outside of the scope of the 1995 EIS.

9.3 Environmental Discipline Change Analysis Summary

This section summarizes the results of the Environmental Discipline Change Analysis. In the following areas where additional analysis is being recommended, it has been determined that the analysis in the 1995 EIS was adequate for DOE decisions announced in the ROD. Future DOE decisions on major federal actions on the INEEL, or decisions deferred in the ROD, will require additional analysis for projects affecting these disciplines.

Environmental Disciplines

The results of the environmental discipline change analysis indicate that the following additional analyses need to be completed: Air Resources analysis impact zone needs to be extended from the 50 km in the 1995 EIS to 200 km to address stakeholder concerns, the Big Lost River flood plain determination on the INEEL should be refined, and the Wildfire Environmental Assessment should be completed. From a regulatory perspective a site-wide composite analysis in accordance with DOE O 435.1 should be completed. While additional analysis is being recommended, the analysis in the 1995 EIS was adequate for DOE decisions announced in the ROD. Future DOE decisions on major federal actions on the INEEL, or decisions deferred in the ROD, will require additional analysis for these disciplines.

The following summarizes the findings from the Environmental Discipline Change Analysis.

Adverse Environmental Effects Which Cannot Be Avoided

In general, adverse environmental effects that cannot be avoided are less than projected in the 1995 EIS. However, additional analysis is still required for both cultural resources and ecology to understand these impacts through completion of the Wildland Fire EA.

Aesthetic and Scenic Resources

Existing analysis is adequate because there are no air quality or visibility issues that are changing the character of the landscape.

Air Resources

Summary of Table 8-1.3.2 and Table 8-1.10.2 Onsite Emissions Impacts of Toxic Air Pollutants

	Amount Analyzed ^a (kg per year)	Total INEEL Emissions (kg per year)	Revised Concentrations ($\mu\text{g}/\text{m}^3$)	Percentage of Standard	Standard ^b ($\mu\text{g}/\text{m}^3$)
Beryllium	0.18	0.59	9.2E-04	< 1	$2 \times 10^0 \mu\text{g}/\text{m}^3$
Carbon tetrachloride	268	2,468	2.3E+03	18	$1.3 \times 10^4 \mu\text{g}/\text{m}^3$
Chloroform	11.5	51.68	4.9E+01	< 1	$9.8 \times 10^3 \mu\text{g}/\text{m}^3$
Hydrochloric acid	17500	21,950	1.8E+02	3	$7 \times 10^3 \mu\text{g}/\text{m}^3$

a. This is the amount analyzed in the 1995 EIS for alternative B.

b. Limits are 8-hour time-weighted averages established by either the American Conference of Government Industrial Hygienists or the Occupational Safety and Health Administration; the lower of the two is used.

While actual emissions of these pollutants were shown to have exceeded the analyzed amount in the 1995 EIS, health and safety impacts of this level of emissions were shown to be negligible. None of these emissions exceeded occupational exposure limits. Total INEEL emissions are within regulatory requirements. However, no analysis of air impacts has been completed beyond 50 km, it is recommended that analysis be completed for some sectors to 200 km based on stakeholder requests and National Park Service requirements.

Cultural Resources

Existing analysis is adequate as long as the INEEL Cultural Resources Management Plan is implemented and assuming completion of the Wildland Fire EA.

Cumulative Impacts and Impacts from Connected or Similar Actions

Cumulative Impact analysis is adequate except for flooding which may need to be updated using data based on a final flood plain determination.

Ecology

Existing analysis is adequate assuming completion of the Wildland Fire EA and no additional impacts to ecological resources from habitat loss.

Environmental Justice

Existing analysis is adequate because there has been no significant spatial redistribution of minority and low income population within the region of influence.

Facility Accidents

Technically adequate, cannot compare results of different analysis, there is a new bounding accident for the INEEL in HLW & FD EIS.

Impacts to the maximally exposed individual of bounding accidents on the INEEL.

	1995 EIS	HLW & FD EIS	LCF
Hot Fuel Examination Facility fuel handling accident	5.0 rem		1
Seismically induced failure of degraded bin sets after 2095		83 rem	270
Failure of ammonia tank connections		Greater than ERPG-2 at 3,600 m	

Geology

Existing analysis is adequate to support facility design and safety. The general geology supports DOE flood hazard requirements.

Health and Safety

Health effects of increased air pollutants were shown to be negligible. Health effects from ground water analysis are shown to still be negligible.

Summary of Table 8-1.10.5 "Offsite Emissions Impacts of Toxic Air Pollutants" for constituents that exceeded previously analyzed emission levels.

Air Pollutant ^a	1995 EIS Concentrations (ng/m ³)		Revised Concentrations (ng/m ³)		Standard (ng/m ³) ^b	Impact as percent of standard	
	Site Boundary	Public Roads	Site Boundary	Public Roads		Site Boundary	Public Roads
Beryllium	4.0E-04	1.0E-03	1.3E-03	3.3E-03	4.2E+00	<1	<1
Carbon tetrachloride	2.4E+00	2.2E+00	2.2E+01	2.0E+01	6.7E+01	33	30
Chloroform	8.9E-02	8.3E-02	2.6E-01	2.4E-01	4.3E+01	<1	<1
Hydrochloric acid ^c				1.7E-02 mg/m ³	3.8E-01 ^d mg/m ³		4.5

a The four air pollutants shown were the only pollutants that exceeded the estimated air emissions in the 1995 EIS. The other pollutant emissions were within the previously analyzed impacts. A complete list of pollutants and emissions is given in App. 8-1 section 10.

- b. As in the 1995 EIS, these are the Acceptable ambient concentration increments (AAC) listed in State of Idaho Rules for the Control of Air Pollution in Idaho. These standards apply to incremental (not cumulative) impacts of facilities constructed or modified after May 1, 1994.
- c. The ratio was not used for this pollutant. The revised concentrations were obtained from "Operable Unit 7-08 Air Dispersion Modeling and Health Effects from Thermal and Catalytic Oxidation Unit Emissions at the Radioactive Waste Management Complex", EDF-1901, June 25, 2001. Only the portion of the HCl emissions that is greater than in the 1995 EIS are reflected here. Since the locations of the two sources are different, there is not a concern with cumulative effects between the two sources.
- d. Acceptable Ambient Concentration (AAC) for hydrochloric acid (24-hour average) (IDAPA 58.01.01)

Summary of Table 8-1.10.4 Radioactive Dose to the Public

Years	Actual Dose to Maximally Exposed Individual (mrem)	1995 EIS Estimated Dose to Maximally Exposed Individual (mrem) ^e	Actual Maximum Potential Population Dose (person-rem)	1995 EIS Estimated Maximum Potential Population Dose (person-rem) ^f
1995 ^a	0.018	0.63	0.08	2.9
1996 ^b	0.03	0.63	0.2	2.9
1997 ^c	0.03	0.63	0.2	2.9
1998 ^d	0.007	0.63	0.08	2.9

INEEL Services

Existing analysis is adequate based on the reported resource usage summary.

Summary of Table 8-1.11.1 Usage of Resources

1995 EIS Annual Usage	Most Recent Data
<u>Water usage –</u> - INEEL site: 1.78 billion gal - I.F. Facilities: 79 million gal	<u>Water Usage 2000 –</u> INEEL site: 1.2 billion gallons I.F. Facilities: 71 million gallons
<u>Electricity usage –</u> INEEL site: 303,521 megawatt hrs I.F. Facilities: 31,500 megawatt hrs	<u>Electricity usage 2000 –</u> INEEL site: 156,639 megawatt hrs I.F. Facilities: 27,683 megawatt hrs
<u>Fuel consumption –</u> Heating Oil usage 4.25M gal; Diesel Fuel usage 1.8M gal; Propane gas use 863,000 gal; Gasoline usage 557,000 gal; Jet Fuel usage 73,100 gal; Kerosene usage 33,800 gal; Coal usage - 9000 tons (Natural gas and LNG/CNG was not addressed in the 1995 EIS)	<u>Calendar Year 2000 Actuals</u> Heating Oil use 2.3 M gal Diesel Fuel use 652,800 gal Propane usage 63,121 gal Gasoline usage 381,347 gal Jet Fuel usage 0 gal * Kerosene usage 45,006 gal Coal usage 0 tons LNG/CNG usage 4.6Mbtu Natural Gas usage 16,816 Mcf
<u>Wastewater treatment and discharge systems.</u> Average annual wastewater disposal INEEL site: 144 million gal I.F. facilities: 79 million gal	<u>Wastewater disposal 2000 –</u> INEEL site: 1.16 billion gal** I.F. facilities: 70 million gal

* This change is a result of discontinuing helicopter service on the INEEL.

** The table used in the 1995 EIS for the actual waste water disposal data for the INEEL site for 1995 (142 million gallons) appears to be in error. Based on 1996 data, (1.18 billion gallon disposed), an overall decrease in wastewater disposal is evident over the period of analysis. This water disposal is in accordance with regulatory requirements and no adverse environmental impacts have been observed as a result of this disposal.

Irreversible and Irretrievable Commitments of Resources

Existing analysis is adequate because irreversible and irretrievable commitments of resources have in general been less than projected in the 1995 EIS.

Land Use

Existing analysis is adequate because the changes in land use have received appropriate analysis.

Acres of undisturbed land projected to be disturbed: 537 acres (217 hectares)

Approximate acres of undisturbed land actually disturbed including acreage to be disturbed that was identified in a decision document but not yet implemented:

INTEC Percolation Ponds	= 20
ICDF	= 40
SSST	= 20
Expanded Landfill	= 225
CFA Medical and Fire Station	= 7
Gravel Pits Total	= 85
*Silt/Clay Sources	= 290
TRA Sewage Lagoons	= 18
Total	= 705

*An Environmental Assessment for New Silt/Clay Source Development and Use at the INEEL was completed and identified 290 additional acres needed for Silt/Clay extraction.

Mitigation

Existing analysis is adequate. None of the proposed mitigation measures described in the 1995 EIS were required to be implemented.

Noise

Existing analysis is adequate because the number of primary noise sources (cars/buses) has decreased.

Regulatory Requirements

Existing analysis is adequate. Regulatory changes are more restrictive than in 1995

Relationship Between Short Term Use of the Environment and the Maintenance and Enhancement of Long Term Productivity

Existing analysis is adequate because projects implement from the 1995 EIS have had short term environmental impacts that have been offset by long term enhancement of environmental productivity.

Socioeconomics

Existing analysis is adequate because site service and employment levels are at or below the analysis conducted in the 1995 EIS.

Table 8-1.18.2 Projected Employment

	1995 Actuals	2000 (projected in 1995 EIS)	2000 (Actuals based on "INEEL Impacts 2000")
Direct Employment	8,620	8,316	8,155

Traffic and Transportation

Existing analysis is adequate because the total number of shipments to the INEEL is over 5 times less than was analyzed in the 1995 EIS.

Total radioactive shipments estimated in the 1995 EIS (10 years)	17, 145
Total actual radioactive shipments through FY 2000 (5 years)	1,255

Water Resources

Ground Water

The 1995 EIS ground water analyses was adequate to support all decisions made in the ROD. As new information becomes available from completion of the site-wide Composite Analysis in accordance with DOE O 435.1 on impacts to groundwater, DOE-ID will incorporate the ground water analysis into future decisions.

The ground water monitoring results comparing data from the 1995 EIS and maximum ground water monitoring results from 1995 - 1999 is shown in Table 8-1.20.1. The table shows decreased contaminant levels for most contaminants. The contaminants that show increases are for inorganic salts around the Mud Lake area (not attributable to INEEL actions) and for carbon tetrachloride. Carbon tetrachloride is being addressed through the CERCLA program which is the procedural equivalent of NEPA.

The 1995 EIS showed a dose of 0.60 mrem/yr attributable to the LLW disposal facility through the year 2060. It also stated that results of the preliminary risk assessment indicate that contaminants would not reach the INEEL site boundary exceeding Federal primary drinking water standards through 2005. Additional analysis completed since the 1995 EIS (the HLW & FD EIS, WAG 3 RI/FS, and RWMC PA/CA) confirms the adequacy of the 1995 EIS.

Surface Water

DOE-ID will refine the Flood Plain documentation per 10 CFR 1022. The review determined that the flood plain analysis in 1995 was adequate for safe operation of INEEL facilities.

9.4 Change Analysis Conclusions

The programs and projects addressed in the 1995 EIS have NEPA documentation that addresses current and planned actions. A number of facilities and operations rely on NEPA documentation in addition to the 1995 EIS to provide an adequate representation of the environmental impacts of these actions. The only area for further analysis identified for projects in the 1995 EIS is in the D&D program. As stated in the ROD for the 1995 EIS, additional analysis will be required before making decisions for the D&D of these facilities. The Supplement Analysis did not evaluate the adequacy of NEPA documentation for any of the national programs that are managed through DOE-ID or for the Grand Junction Field Office.

While the 1995 EIS used a cutoff date of 2005 for the analysis, this review determined that the 1995 EIS provides a bounding analysis for most projects beyond 2005. Any changes in programmatic actions will require additional analysis.

The results of the environmental discipline change analysis indicate that the following additional analyses needs to be completed: Air Resources analysis impact zone needs should be extended from the 50 km in the 1995 EIS to 200 km to address stakeholder concerns, the Big Lost River flood plain on the INEEL needs to be refined, and the Wildfire Environmental Assessment must be completed. While additional analysis is being recommended, the analysis in the 1995 EIS was adequate for DOE decisions announced in the ROD. Future DOE decisions on major federal actions on the INEEL, or decisions deferred in the ROD, will require additional analysis for these disciplines.

10.0 LIST OF PREPARERS

This list presents the individuals who contributed to the technical content of this Supplement Analysis. Some of the individuals listed below prepared specific sections in accordance with their technical qualifications. Other technical experts provided input to those sections through in-depth review and data verification. Still others provided overall technical or management reviews for their respective organizations.

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